CYPRESS SAVANNA (ACIDIC SUBTYPE)

Concept: Cypress Savannas are wetlands of flat-bottomed depressions, typically clay-based Carolina bays, with dense, diverse herbaceous layers. A canopy of *Taxodium ascendens* is usually present but trees may be absent. Cypress Savannas are intermediate in wetness between Vernal Pools and Small Depression Pond communities, and so overlap in hydroperiod with Small Depression Drawdown Meadows; however, their vegetation and flora are different.

The Acidic Subtype covers Cypress Savannas with vegetation that is dominated by acid-loving or boggy plants such as *Anchistea virginica, Carex striata*, and *Sphagnum* spp. and is generally relatively low in species richness.

Distinguishing Features: Cypress Savannas are distinguished from Vernal Pools by having a longer typical hydroperiod and from Small Depression Ponds by having a shorter hydroperiod. The are most similar in hydroperiod to Small Depression Drawdown Meadows but differ in basin shape and have different flora.

The Acidic Subtype is distinguished by vegetation dominated by plants tolerant of extreme acidity. *Sphagnum* spp, *Anchistea virginica*, and *Carex striata* usually are dominant or prominent. The less acid-tolerant species characteristic of the Typic Subtype may be present only in small numbers and with low diversity. An open canopy of *Taxodium ascendens* or *Nyssa biflora* is generally present. Shrubs shared with either ponds or pocosins may be present but the shrub layer is open.

The Acidic Subtype is distinguished from the Small Depression Pond (Boggy Pool Subtype) by occurring in broad, flat basins, by the presence of a well-developed *Taxodium* or *Nyssa* canopy, and by greater species richness. It is distinguished from the Coastal Plain Depression Swamp (Mixed Subtype) by a more open canopy, well developed herb layer, and absence of a dense shrub layer. It is distinguished from Small Depression Pocosin by lacking a dense shrub layer.

Synonyms: *Taxodium ascendens / Woodwardia virginica* Woodland (CEGL004441). Cypress Savanna (3rd Approximation). Small Depression Drawdown Meadow/Savannas (Acid Cypress Savanna subtype) (earlier 4th approximation guide drafts).
Ecological Systems: Atlantic Coastal Plain Clay-Based Carolina Bay Wetland (CES203.245).

Sites: The Acidic Subtype is known largely from clay-based Carolina bays but could occur in other kinds of depressions.

Soils: The few examples are mapped as a variety of different soils, most mineral soils with an organic layer or mineral soils similar to the Typic Subtype. Series mapped include Lynn Haven (Typic Alaquod), Pantego (Umbric Paleaquult, and McColl (Typic Fragiaquult).

Hydrology: The Acidic Subtype appears to be similar to the Typic Subtype in having surface water of shallow-to-moderate depth, a few inches to a couple of feet, in times of normal rainfall. Surface water typically persists well into the growing season but is gone before the end of summer in ordinary years. However, water levels and hydroperiods vary substantially in response to weather cycles through whole years. The relatively flat bottom of the basins leads to similar water

levels over large areas, in contrast to more sloping depressions where zones of a given water depth may shift but remain present somewhere in the basin.

Vegetation: The Acidic Subtype usually has an open canopy of *Taxodium ascendens*, though trees can range from absent or sparse to fairly dense. The thin crowns of this species cast limited shade even at fairly high densities. *Nyssa biflora* is often present in patches or as an understory. *Pinus taeda*, generally smaller individuals, is often present in examples and is sometimes dense. It is believed to be an invader not characteristic of more natural conditions. The herb layer is moderate to dense. It is dominated by species tolerant of extremely acidic conditions and is low in species richness. *Anchistea virginica* is the most constant species and usually abundant. *Carex striata, Carex glaucescens,* or *Lachnanthes caroliniana* are often abundant. *Sphagnum* spp. is usually present, sometimes abundant, but does not form a large continuous cover. Other herbs that are noted with lower frequency include *Hymenachne hemitomon, Erianthus* spp., *Utricularia minor, Utricularia purpurea, Rhynchospora inundata, Scirpus cyperinus, Dulichium arundinaceum, Drosera intermedia*, and *Dichanthelium* sp. Other herbs characteristic of the Typic Subtype may occasionally occur. Shrubs are usually present at low-to-moderate density with *Cyrilla racemiflora, Lyonia lucida, Vaccinium fuscatum, Vaccinium formosum*, and *Ilex Amelanchier* most frequent. *Ilex myrtifolia, Itea virginica*, and other species occur occasionally. *Smilax rotundifolia* and occasionally *Smilax laurifolia* may be locally abundant.

Range and Abundance: Ranked G2?. Most examples in North Carolina are in the inner Coastal Plain concentration of clay-based Carolina bays in Robeson and adjacent counties. A few are reported farther east in the Coastal Plain. They range through South Carolina, where they are apparently more abundant.

Associations and Patterns: Cypress Savanna (Acidic Subtype) communities tend to fill entire basins, with the exception of a Small Depression Shrub Border community around the edge. They occur near other bays with the Typic Subtype, Coastal Plain Depression Swamp, or other depression communities.

Variation: Patterns of variation have not been identified. Some examples seem more similar to the Typic Subtype than others.

Dynamics: Dynamics are believed to be similar to those in the Typic Subtype. Variation in vegetation in response to changing water levels may be less because of the small pool of species. As in the Typic Subtype, fire appears to be important in preventing establishment of *Pinus taeda* and *Liquidambar styraciflua* during drought. Many of the known examples now have these species present.

The factors that lead to this subtype rather than the Typic Subtype are not known. Often the two occur in close proximity. The acidic character of the vegetation appears to be stable and of long standing. However, this needs further investigation.

Comments: The name of the Acidic Subtype is meant to convey the bog-like extremely acidic conditions suggested by the species composition and abundance of *Sphagnum*. However, the Typic Subtype too has acidic soils. It is unclear if sites of the Acidic Subtype were initially more

acidic or became so because of the vegetation.

This subtype includes the *Taxodium ascendens / Pinus taeda - Acer rubrum - Liquidambar styraciflua / Lindera / Smilax glauca / Carex glaucescens* Swamp (9.1.3); *Taxodium ascendens / (Nyssa biflora)* Swamp (9.1.4) of Nifong (1998).

Rare species: Vascular plants: *Carex verrucosa, Hypericum fasciculatum, Lindera melissifolia, Litsea aestivalis,* and *Rhexia aristosa*.
Vertebrate Animals: *Ambystoma maybeei*.

References:

Nifong, T.D. 1998. An ecosystematic analysis of Carolina bays in the Coastal Plain of North Carolina. Ph.D. Dissertation, University of North Carolina, Chapel Hill.